

Amendments to the Specification:

Please amend the paragraph starting at page 3, line 7 and ending at page 3, line 22 to read, as follows.

--Figs. 8A, 8B and 8C show the screw for carrying the developer, Fig. 8A is an outline view of the screw, Fig. 8B is a sectional view cut along a plane passing through a rotation centerline center line of the screw, and Fig. 8C is an explanatory view of a developer carrying state. Reference numeral 13 denotes a rotation centerline, center line; reference numeral 14 denotes a rotary shaft, and reference numeral 15 denotes a blade wound thereabout in a spiral form. If an angle formed by the blade 15 with respect to the rotation centerline center line facing in the developer carrying direction is assumed to be  $\theta$ , the angle  $\theta$  is usually set at about 70 to 80 degrees in consideration of a draft angle or the like of a forming die because the carrying force for the developer becomes larger when the angle  $q$  becomes closer to the perpendicular--

Please amend the paragraphs starting at page 8, line 12 and ending at page 8, line 27 to read, as follows.

--Figs. 2A, 2B and 2C show a screw for carrying a developer, Fig. 2A is a sectional view cut by a plane passing through a rotation centerline center line of the screw, Fig. 2B is a table showing results of performing a developer carrying experiment by changing a blade angle (inclination angle), and Fig. 2C is an explanatory view of a state of the developer carried by the screw;

Figs. 3A, 3B and 3C show a screw of a developing apparatus according to a second embodiment, Fig. 3A is an outline view of the screw, Fig. 3B is a sectional view cut by a

plane passing through a rotation centerline center line of the screw, and Fig. 3C is a table showing results of performing a developer carrying experiment by changing a blade angle (inclination angle);--

Please amend the paragraphs starting at page 9, line 22 and ending at page 10, line 7 to read, as follows.

--Figs. 8A, 8B and 8C show a screw for carrying the developer, Fig. 8A is an outline view of the screw, Fig. 8B is a sectional view cut by a plane passing through a rotation centerline center line of the screw, and Fig. 8C is an explanatory view of a developer carrying state;

Fig. 9 is a sectional view cut by a plane passing through a rotation centerline center line of a screw of a third embodiment;

Fig. 10 is a sectional view cut by the plane passing through the rotation centerline center line of the screw of the third embodiment, and is an enlarged view of blade portions;--

Please amend the paragraphs starting at page 10, line 15 and ending at page 10, line 21 to read, as follows.

--Fig. 14 is a sectional view cut by a plane passing through a rotation centerline center line of the screw of the fourth embodiment;

Fig. 15 is a sectional view cut by the plane passing through the rotation centerline center line of the screw of the fourth embodiment, and is an enlarged view of blade portions;--

Please amend the paragraph starting at page 11, line 5 and ending at page 11, line 16 to read, as follows.

--Next, an image forming apparatus including a developing apparatus according to a first embodiment of the present invention will be explained with reference to Fig. 1, Figs. 2A, 2B and 2C. Fig. 1 is a schematic sectional view of an entire image forming apparatus, Figs. 2A, 2B and 2C show a screw for carrying a developer, Fig. 2A is a sectional view cut by a plane passing through a rotation centerline centerline of the screw, Fig. 2B is a table showing results of performing a developer carrying experiment by changing a blade angle, and Fig. 2C is an explanatory view of a state of the developer carried by the screw.--

Please amend the paragraph starting at page 14, line 2 and ending at page 14, line 27 to read, as follows.

--In each of the screws 5 and 6 of this embodiment, an outer diameter including a blade 15 is 14 mm, a shaft diameter of a rotary shaft 14 is 6 mm, and a pitch in a longitudinal direction of the blade is 15 mm. While the conventional screw has the construction in which the blade with inclination angles of the carrying surface facing in the developer carrying direction and the surface facing in the opposite direction to the carrying direction with respect to the rotary shaft being the same (a section of the blade is a substantially isosceles triangle) is only wound thereabout in a spiral form, the construction of the screw of this embodiment has a construction in which an angle (inclination angle)  $\theta$  formed by a carrying surface facing in a developer carrying direction of the blade and a centerline centerline of the rotary shaft 14 is made smaller than the prior art, and inclination angles of the carrying surface facing in the developer carrying direction and a

surface facing in an opposite direction to the carrying direction with respect to the rotary shaft differ (the section of the blade is not an isosceles triangle). In concrete, the inclination angle of the carrying surface facing in the developer carrying direction is smaller than the inclination angle of the surface facing in the opposite direction.--

Please amend the paragraph starting at page 17, line 12 and ending at page 17, line 25 to read, as follows.

--Figs. 3A, 3B and 3C show a screw of a developing apparatus according to a second embodiment, Fig. 3A is an outline view of the screw, Fig. 3B is a sectional view cut by a plane passing through a rotation centerline ~~center line~~ of the screw, and Fig. 3C is a table showing results of performing a developer carrying experiment by changing a blade angle. Fig. 4A is an explanatory view of a state of a developer carried by the screw, and Fig. 4B is a sectional view for explaining relationship of a distance (height) H1 from a surface (reference surface) of a rotary shaft of the screw to a tip end of the blade and a distance H2 from the reference surface to an intersection point P of two carrying surfaces 30a and 30b.--

Please amend the paragraph starting at page 22, line 21 and ending at page 23, line 1 to read, as follows.

--Next, a screw used in a developing apparatus of a third embodiment will be explained. Fig. 9 and Fig. 10 are sectional views each cut by a plane passing through a rotation centerline ~~center line~~ of the screw of this embodiment, and are the drawings each

for explaining angles of the blades and length constituting the blades. A carrying direction of a developer in the drawings is leftward.--

Please amend the paragraph starting at page 23, line 11 and ending at page 23, line 26 to read, as follows.

--As shown in Fig. 9 and Fig. 10, in the carrying spiral blade 15, an angle formed by a carrying surface facing in the developer carrying direction and a centerline center-line of the shaft is ( $\theta_1$ ), a height of the blade (a distance from a reference surface of the shaft of the screw) is ( $H_1$ ), and a length in the shaft direction of the blade is ( $L_1$ ), and in the bulk-increasing spiral blade 16, an angle made by a carrying surface facing in the developer carrying direction and the centerline center-line of the shaft is ( $\theta_2$ ), a height of the blade is ( $H_2$ ) and a length in the shaft direction of the blade is ( $L_2$ ). An outer diameter of the screw including the blade is assumed to be 14 mm, the diameter of the center shaft member is 6 mm, the pitch in the longitudinal direction of the blade is 15 mm,  $\theta_1 = 70^\circ$ ,  $H_1 = 4$  mm,  $L_1 = 3$  mm, and  $L_2 = 5$  mm.--

Please amend the paragraph starting at page 26, line 18 and ending at page 27, line 9 to read, as follows.

--In the third embodiment, the construction which is additionally provided with one bulk-increasing spiral blade 16 just behind the carrying spiral blade 15 is explained, but in this embodiment, a construction provided with two bulk-increasing spiral blades by adding one more bulk-increasing spiral blade will be explained. Looking at this from a different angle, the construction in which a surface 17 of a space between a second blade 16 and "a

first blade 15 at an upstream side of the second blade 16 in the developer carrying direction" is inclined to the developer carrying direction is adopted. Fig. 13 is an outline view of a screw of this embodiment, Fig. 14 and Fig. 15 are sectional views each cut by a plane passing through a rotation centerline center line of the screw of this embodiment, which are views for explaining angles of the blades and lengths constructing the blades. The carrying direction of the developer in these drawings is leftward.--

Please amend the paragraph starting at page 28, line 14 and ending at page 29, line 2, to read, as follows.

--As shown in Fig. 17, in this embodiment, as a result of providing the bulk-increasing blade 17, not only the clearance of the developer just behind the carrying spiral blade 15 can be filled as in the third embodiment, but also a force exerted in substantially the perpendicular direction to the rotation centerline center line can be applied to the developer in a middle point of the carrying spiral blade 15 and the carrying spiral blade 16 where the developer height tends to be low. As a result, it is made possible to realize the extremely even developer height as a whole. Since only the virtual bulk of the developer is increased and the carrying amount is not decreased, the developer carrying performance is not hindered as long as this is used in a preferable range.--

Please amend the paragraph starting at page 29, line 20 and ending at page 30, line 9 to read, as follows.

--As explained above, in this embodiment, as a result of providing two of the bulk-increasing spiral blades (looking at this from a different angle, the construction in which

the surface 17 between the second blade 16 and “the first blade 15 at the upstream side of the second blade 16 in the developer carrying direction” is inclined to the developer carrying direction is adopted), not only the clearance just behind the carrying spiral blade (the first blade) 15 can be filled as in the third embodiment, but also the force exerted in the perpendicular direction to the rotation centerline center line is applied to the developer in the middle point between the carrying spiral blade and the carrying spiral blade, where the height of the developer tends to be low, whereby it is possible to realize extremely uniform developer height as a whole.--

Please amend the paragraph starting at page 30, line 20 and ending at page 31, line 12 to read, as follows.

--The case in which two of the bulk-increasing spiral blades are included is explained so far, but the bulk-increasing spiral blade may be constructed by three or more bulk-increasing spiral blades as a bulk-increasing blade part (here, a bulk-increasing blade 18 is added) as shown in Fig. 18, or more bulk-increasing spiral blades than this. By placing a plurality of bulk-increasing spiral blades in addition to the carrying spiral blade, the center shaft member is covered with the carrying spiral blades and the bulk-increasing spiral blades, and most of the screw is constructed by the surfaces inclined in the carrying direction without exposing substantially all parts of the center shaft member. As a result, it becomes possible to allow the force in the carrying direction and the force exerted in the perpendicular direction to the rotation centerline center line to act on the developer existing all the places of the screw, thus making it possible to keep the developer height uniform.--